Current Pharmaceutical Design 2018 vol.24 N20, pages 2236-2240

Mycoplasmas and novel HO-1 inducers: Recent advances

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Abstract

© 2018 Bentham Science Publishers. Inflammation and the ways for its regulation: The development of an effective system for the treatment of inflammatory diseases requires comprehensive studies of the cellular signaling molecular networks comprising responses to various stressors, including pathogenic and non-pathogenic microorganisms. Significant attention on fundamental and applied research has recently focused on inducers of heme oxygenase-1 (HO-1) and inhibitors of the expression of this enzyme, which regulates expression of this and other cytoprotective molecules and modulation of inflammation. Recent studies indicate that mycoplasmas (a major group of human pathogens of the Mollicutes) are capable of modulating inflammatory responses through the activation of the Nrf2 and the expression of HO-1. In vitro experiments demonstrate that the membrane lipoproteins (LAMPs), along with lipoprotein derivatives (lipopeptide MALP-2) in mycoplasmas cause a "cross-talk" between the pro-and anti-inflammatory signaling pathways. Importantly, lipopeptide/lipoprotein-induced expression of HO-1 tends to suppress inflammation. Conclusion: The study of the molecular network that causes the corresponding outcome can facilitate the development of new approaches for the treatment of inflammatory processes. The derivatives of LAMPs and MALP-2 and of their analogues may prove promising for the treatment of diseases associated with chronic inflammation.

http://dx.doi.org/10.2174/1381612824666180716170128

Keywords

Ho-1 inducers, Human pathogens, Inflammatory response modulation, Lipoprotein derivatives, Membrane lipoproteins, Mollicutes, Mycoplasmas

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